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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,467	08/26/2003	Yukio Asari	009270-0305494	2316

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EXAMINER

MORRISON, THOMAS A

ART UNIT	PAPER NUMBER
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3653

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,467

Applicant(s)

ASARI, YUKIO

Examiner

Thomas A. Morrison

Art Unit

3653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 7-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3-5 and 7-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

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DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on January 14, 2005 fails to comply with 37 CFR 1.97(c) because it lacks a statement as specified in 37 CFR 1.97(e). It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

2. Claims 1, 3, 4 and 8 are objected to because of the following informalities: (1) "a conveying direction" in line 4 of claim 1 should be -- the first direction --; (2) "sheets fed" in line 8 of claim 1 should be -- sheets --; (3) "normal direction" in claim 3 should be -- normal rotation --; (3) "a reverse direction" in claim 4 should be -- the reverse rotation --; (4) "conveying direction" in line 3 of claim 4 should be -- first direction --; (5) "a conveying direction" in line 5 of claim 5 should be -- the first direction --; (6) "sheets fed" in line 3 of claim 7 should be -- sheets --; (7) "a reverse direction" in line 3 of claim 8 should be -- the reverse rotation --; (8) "conveying direction" in line 4 of claim 8 should be -- first direction --; and (9) "sheets" in line 6 of claim 8 should be -- the sheets --.

Appropriate correction is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 3-5 and 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the conveying gap" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the conveying velocity" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the second conveying path" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the lengths" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the sheet" in line 13. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 5, it is unclear what is referred to by the recited "its".

Claim 8 recites the limitation "the conveying velocity" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Also, claims 1 and 5 and their dependent claims 3-4 and 7-10 require a controller to control or controlling the conveyance of the sheets so that the conveying gap between the sheets conveyed on the second conveying path becomes equal to the specified gap when conveyed on the first conveying path regardless of lengths of plural

Art Unit: 3653

sheets. It is unclear what is controlled by the controller in order to make the gaps equal on the first and second conveying paths. Does the controller control the reversing roller or some other element?

Applicant noted in the remarks section of the amendment dated March 18, 2005 that the conveyance of the sheets is controlled by adjusting/controlling the reversing roller 11 and the pinch roller 12. Applicant also noted that by adjusting/controlling the reversing roller 11 and the pinch roller 12, the gaps between two sheets may be the same on the first and second paths 4 and 7. While this clarification is appreciated, such structures are not recited in the language of the claims. As such, it is unclear from the language of the claims, what is controlled by the controller in order to make the gaps equal on the first and second conveying paths.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-5 and 7-10, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,487,506 (Repp et al.) in view of U.S. Patent No. 5,449,166 (Lohmann et al.). In particular, the combination of Repp et al. and Lohmann et al. discloses all of the limitations of claims 1, 3-5 and 7-10.

Regarding independent claim 1, Figs. 1 and 4 of Repp et al. show a sheet reversing controller (500) including

a first conveying path (from fuser F into nip between 501 and 502) to convey plural sheets in a first direction with a specified gap;

a reversing portion (including 504 and 505) arranged at the downstream in a conveying direction of the first conveying path (from fuser F into nip between 501 and 502), comprising a reversing roller (504) capable of normal and reverse rotations to take and reverse the sheets fed from the first conveying path (from fuser F into nip between 501 and 502) and a pinch roller (505) arranged opposing to the reversing roller (504);

a second conveying path (through nip between 502 and 503 and into duplex tray 400) to take and convey the sheets fed in a second direction differing from the first direction of the first conveying path (from fuser F into nip between 501 and 502) by the reversing portion (including 504 and 505); and

a controller (101) to control the conveyance of the sheets. Also, Fig. 4 of Repp et al. shows that the controller (101) sets a protruding amount of the sheets protruding between the reversing portion (including 504 and 505) and the second conveying path (through the nip between 502 and 503 and into duplex tray 400) when the sheets are stopped for reversing the conveying direction of the sheets to a fixed length regardless of lengths of the sheets. For example, the protruding amount is set via the sensor S1. However, Repp et al. does not specifically disclose controlling the conveyance of the sheets so that the conveying gap between the sheets conveyed on the second conveying path becomes equal to the specified gap when conveyed on the first conveying path regardless of lengths of the plural sheets.

The Lohmann et al. patent discloses that it is well known to control the conveyance of sheets (not shown) in a sheet reversing controller via a controller (33) so that the gaps between the sheets conveyed on a second conveying path become equal to the gaps between the sheets when conveyed on a first conveying path and that the reversing controller accommodates different paper lengths. More specifically, Lohmann et al. explains that such gap control avoids impact between the sheets. (See Figs. 1-3, column 4, lines 24-27 and column 4, line 32 to column 5, line 2 of Lohmann et al.). It would have been obvious to one of ordinary skill in the art at the time the invention was made, to operate the controller (101) of Repp et al. so that the gap of the sheets conveyed on the second conveying path is equal to the gap when conveyed on the first conveying path regardless of paper length, to avoid impact between the sheets, as taught by Lohmann et al.

Turning now to independent claim 5, Repp et al. discloses a sheet reversing control method including

conveying plural sheets on a first conveying path (from fuser F into a nip between 501 and 502) in a first direction with a specified gap;

taking and reversing the sheets fed from the first conveying path (from fuser F into a nip between 501 and 502) in a reversing portion (including 504 and 505) arranged at the downstream in a conveying direction of the first conveying path (from fuser F into a nip between 501 and 502) comprising a reversing roller (504) that is capable of normal and reverse rotations and a pinch roller (505) arranged opposing to the reversing roller (504);

taking the sheets in a second direction differing from the first direction after reversing by the reversing portion (including 504 and 505) and conveying on the second conveying path (through nip between 502 and 503 and into duplex tray 400).

Also, Fig. 4 of Repp et al. shows that the controller (101) sets a protruding amount of the sheets protruding between the reversing portion (including 504 and 505) and the second conveying path (through the nip between 502 and 503 and into duplex tray 400) when the sheets are stopped for reversing the conveying direction of the sheets to a fixed length regardless of lengths of the sheets. For example, the protruding amount is set via the sensor S1. However, Repp et al. does not specifically disclose controlling a conveyance of the sheets so that a conveying gap of the sheets conveyed on the second conveying path becomes equal to the specified gap when conveyed on the first conveying path regardless of the lengths of the plural sheets.

Again, Lohmann et al. patent discloses that it is well known to control the conveyance of sheets (not shown) in a sheet reversing controller via a controller (33) so that the gaps between the sheets conveyed on a second conveying path become equal to the gaps between the sheets when conveyed on a first conveying path and that the reversing controller accommodates different paper lengths. More specifically, Lohmann et al. explains that such gap control avoids impact between the sheets. (See Figs. 1-3, column 4, lines 24-27 and column 4, line 32 to column 5, line 2 of Lohmann et al.). It would have been obvious to one of ordinary skill in the art at the time the invention was made, to operate the controller (101) of Repp et al. so that the gap of the sheets conveyed on the second conveying path is equal to the gap when conveyed on the first

conveying path regardless of paper length, to avoid impact between the sheets, as taught by Lohmann et al.

Regarding claims 3 and 7, Lohmann et al. discloses that it is desirable to control a velocity of a reversing mechanism (14 and 17) when rotating in a normal direction so as to agree with a conveying velocity of sheets before the sheets fed from a first conveying path (A) reach the reversing mechanism (14 and 17) in a reversing portion (including 14 and 17), to reliably receive the sheets in the reversing mechanism without jars or shocks. See, e.g., column 2, lines 58-65. Lohmann et al. also discloses that such reversing mechanism can alternatively include rollers. See column 3, lines 35-44. It would have been obvious to one of ordinary skill in the art at the time the invention was made, to operate the controller of Repp et al. so that the sheet reversing roller of Repp et al. is at the same velocity as the sheet conveying velocity, to reliably receive the sheets in the reversing portion of Repp et al. without jars or shocks, as taught by Lohmann et al.

Regarding claims 4 and 8, Lohmann et al. discloses that it is well known to control the velocities of upstream and downstream components so that they have the same velocities in order to assure impact free and reliable transfer, e.g., controlling velocities of rollers or belts of inverter systems. See, e.g., column 3, lines 5-10 and lines 35-44. It would have been obvious to one of ordinary skill in the art at the time the invention was made, to control the velocity of the reversing roller (504) of Repp et al. via the controller (101) of Repp et al. so that the reversing roller (504) when rotating in a reverse direction to feed the sheets in the second direction agrees with the conveying

velocity of the second conveying path, to assure impact free and reliable transfer, as taught by Lohmann et al.

Regarding claims 9 and 10, operating the controller (101) of the single inverter of Repp et al. according to the teachings of Lohmann et al., to control the gaps between incoming and outgoing sheets, will result in control of the conveyance of the sheets so that the conveying gap between the sheets conveyed on the second conveying path (through nip between 502 and 503 and into duplex tray 400) of Repp et al. becomes equal to the specified gap when conveyed on the first conveying path (from fuser F into nip between 501 and 502) of Repp et al. regardless of lengths of the plural sheets with the single inverter of Repp et al.

Response to Amendment

5. Applicant's arguments filed March 18, 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that certain sections of the specification disclose the structure (e.g., reversing roller 11 and pinch roller 12) that is controlled by the controller, it is noted that such structure is not recited in the language of the claims. As such, it is unclear from the language of the claims, what is controlled by the controller in order to make the gaps equal on the first and second conveying paths. The rejection of the claims under 35 U.S.C. 112, second paragraph is outlined above.

Regarding the rejection under 35 U.S.C. 103, applicant argues that Repp fails to disclose, teach or suggest a sheet reversing controller wherein, inter alia, the controller sets a protruding amount of the sheets protruding between the reversing portion and the

second conveying path when the sheets are stopped for reversing the conveying direction of the sheets to a fixed length regardless of the lengths of the sheets.

In response to this argument, it is noted that when a trailing edge of any size (i.e., any length) sheet passes by the sensor (S1) of Repp et al., a signal is sent to the controller (101), which then forwards the signal to a reversible drive control means to reverse the rollers (504 and 505). This causes the sheet that is initially moving toward the rollers (504 and 505) to be slowed down, to briefly stop, and then to start moving in reverse toward the second path (between rollers 502 and 503). When the sheet is briefly stopped, the trailing edge of the sheet is located at a protrusion length that extends at a location between the reversing portion (rollers 504 and 505) and the second path (rollers 502 and 503). See, e.g., Fig. 4 of Repp et al. This operation is based on the sensing of the trailing edge of any size sheet by the sensor S1. In other words, the controller of Repp et al. sets a protruding amount of the sheets protruding between the reversing portion and the second conveying path when the sheets are stopped for reversing the conveying direction of the sheets to a fixed length regardless of the lengths of the sheets, as claimed.

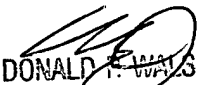
Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

Art Unit: 3653

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Walsh can be reached on (571) 272-6944. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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